

SPEC

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## METHOD AND SYSTEM FOR ATTACHING A GRAFT TO A BLOOD VESSEL

*Br. Gr/104* 5 This application is a continuation of U.S. Patent Application Serial No. 10/197,352, filed on July 16, 2002; which in turn is a continuation of U.S. Patent Application Serial No. <sup>Now PCT 6,497,710</sup> <sup>U.S. Patent Serial No. 09/133,855 Now</sup> 09/778,003, filed on February 7, 2001; which in turn is a divisional of U.S. Patent No. 6,206,913, filed on August 12, 1998; all of which are incorporated by reference in their entirety.

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### BACKGROUND OF THE INVENTION

This invention generally relates to devices and methods for performing a vascular anastomosis, and more particularly to stents for securing a graft vessel to a target vessel.

Vascular anastomoses, in which two vessels within a patient are surgically joined together to form a continuous channel, are required for a variety of conditions including coronary artery disease, diseases of the great and peripheral vessels, organ transplantation, and trauma. 15 For example, in coronary artery disease (CAD), an occlusion or stenosis in a coronary artery interferes with blood flow to the heart muscle. In order to restore adequate blood flow to the heart, a graft vessel in the form of a prosthesis or harvested artery or vein is used to reroute blood flow around the occlusion. The treatment, known as coronary artery bypass grafting (CABG), 20 can be highly traumatic to the patient's system.

In conventional CABG a large incision is made in the chest and the sternum is sawed in half to allow access to the heart. In addition, cardiopulmonary bypass, in which the patient's blood is circulated outside of the body through a heart-lung machine, is used so that the heart can be stopped and the anastomosis performed. In order to minimize the trauma to the patient's 25 system induced by conventional CABG, less invasive techniques